Joint Oceanographic Institutions
1755 Massachusetts Avenue NW, Suite 700
Washington, DC 20036
Carol A. Kokinda
202-232-3900 x235/202-265-4409/ckokinda@brook.edu

# IN-SITU SAMPLING AND CHARACTERIZATION OF NATURALLY OCCURING MARINE METHANE HYDRATE USING THE D/V JOIDES RESOLUTION.

**ABSTRACT**

One of the most exciting scientific revelations in recent years is that vast areas beneath our oceans contain gas hydrate. Clearly, as we begin to understand the characteristics and dynamics of these systems, both locally and globally, "groundtruthing" through scientific drilling will become increasingly vital.

A major obstacle confronts such research efforts: gas hydrates encountered at depth in a borehole are not stable at surface pressures and temperatures, generally dissociating during standard core recovery operations. Thus, we need special tools that (1) characterize gas hydrates at ambient conditions within the borehole, (2) retrieve gas hydrates and surrounding sediment at *in situ* conditions, or (3) rapidly identify gas hydrates in cores at the surface before they completely dissociate. *The development and testing of these tools must lie at the forefront of any successful gas hydrate progra*m.

Although some tools appropriate to characterizing gas hydrates in natural systems lie in the medium to long-term future, we can with minimal cost and foresight construct and deploy successful tools in the near future that will benefit all hydrate researchers. *This proposal seeks funding to advance existing tools and techniques that are absolutely critical to current gas hydrate researc*h.

The Ocean Drilling Program (ODP) is an international partnership of scientists, engineers, and research institutions organized to explore Earth's history and structure as recorded in the ocean basins using the D/V JOIDES *Resolutio*n. Similar to DOE, ODP has a strong commitment to understand the mass, distribution, characteristics and dynamics of naturally occurring gas and gas hydrate. *With new drilling and technology, and collaborative efforts with industry and international researchers, the potential for significant new discoveries in gas hydrate research by ODP is extremely hig*h.

Because of its complexity and location, the Gulf of Mexico provides a very important but challenging target for scientific drilling of gas hydrates. The Gulf of Mexico will most probably

be drilled in the next 5 years by ODP or IODP, in which case a working set of tools for collecting and analysing gas hydrates will become paramount to success. There is an unparalled opportunity to immediately use and advance special tools that are appropriate for gas hydrate research on upcoming ODP legs, especially Leg 204. *The scientific and technological data gathered from these field deployments provide an excellent investment for any future drilling of gas hyrdrates in the Gulf of Mexic*o.